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Additional lichen records from Giresun Province, Turkey

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Abstract – A total of 299 lichen taxa are presented from 52 sampling stations in the Turkish province of Giresun. Of these 5 species are new to Turkey, viz. *Biatora cuprea*, *Collema dichotomum*, *Gyalecta foveolaris*, *Umbilicaria virginis* and *Verrucaria fusconigrescens*, and 110 species are new to Giresun. The complete checklist is available on http://www.mycotaxon.com/resources/weblists.html.

Key words – biota, biodiversity, Karagöl Mountains

Introduction

Despite intense lichenological field activity in Turkey in recent years, many areas remain poorly known with respect to their lichen biota. As to Giresun province, until now 14 research articles on its lichen biota have been published (Aslan et al. 2002, Aslan & Yazıcı 2006, Duman & Yurdakulol 2007, Halıcı & Şenkardeşler 2009, John & Breuss 2004, Kınalıoğlu 2005, 2006, 2008, Kınalıoğlu & Engin 2004, Küçük 1990, Özgen et al. 2003, Steiner 1909, Süleyman et al. 2002, Yazıcı 2006, Yazici & Aptroot 2008). However, these studies still do not give an adequate picture of the lichen biota of Giresun as new fieldwork by the author has shown. This provided many additions to our knowledge of the lichens of Giresun and Turkey, which are presented below.

The study area

Giresun is located in the eastern part of the Black Sea region of Turkey (Fig. 1), at the boundary of the Euxianian section of the Euro-Siberian Phytogeographical Region. It is situated between 40°07' 41°08' N and 37°50' 39°12' E at altitudes ranging from sea level to 3331 m. The province has a surface of 6934 km^2, mostly of rough topography. The most important altitudes of Giresun are Abdal Musa peak (3331 m), Cankurtaran peak (3278 m), Gâvur mountain peak (3067 m), Küçükkor peak (3044 m), Karagöl mountains (3107 m) and Kırkkızlar peak

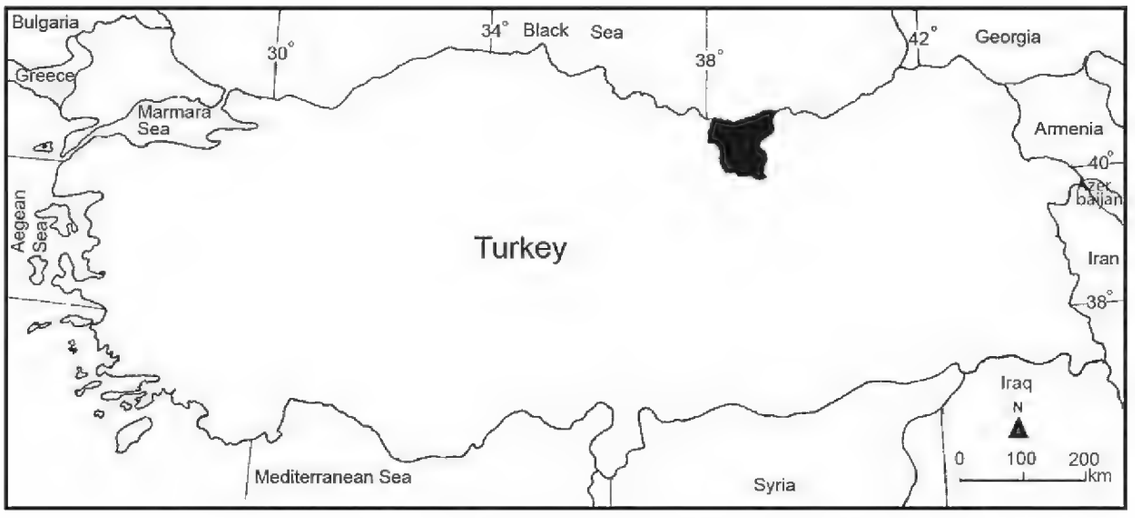

Fig. 1. Map of Turkey showing Giresun province.

(3040 m). The mountainous landscape has many rock outcrops, predominantly consisting of siliceous rocks. Upper Cretaceous volcanic deposits (agglomerata, basalt, dacite, granodiorit) are mostly present in the northern of Giresun, while deposits of Oligocene and Miocene (gypsiferous, dolorite, andesite) are quite large in the southern of province. There are various glacial lakes in the Karagöl mountains. The most important of these lakes is Karagöl lake. Around Karagöl lake patches of snow and ice persist even in the summer months. Small plains exist near the coastal area. The wide altitudinal variation, rough topography, influence of the adjacent sea, and big streams provide a wide range of climatic conditions though large parts of Giresun has an oceanic climate. Following Emberger's principles, Akman (1990) reports that the mean precipitation-temperature coefficient (Q) is 202 and the aridity index (S) is 9.5 for Giresun. The mean rainfall per year is 1271.7 mm and the rainfall regime is 'Oceanic Rain Regime Marina Type I.' The mean annual maximum temperature is 26.6°C in August, while the mean minimum temperature is 4.3°C in February. The mean annual relative humidity is 76%. The vegetation is equally varied. The northern slopes, up to 800 m, have decideous trees of *Corylus* spp., *Alnus* spp., *Carpinus orientalis* and *Castanea sativa*. The dominant *Corylus* spp. are an important crop plant. From 800 to 1500 m *Fagus orientalis* is dominant. It is often accompanied by *Carpinus betulus*, *Picea orientalis*, *Rhododendron ponticum*, *Ulmus glabra* and *Quercus hartwissiana*. At 1500 2000 m the forest consists of *Picea orientalis* together with *Pinus sylvestris* and *Abies nordmanniana* subsp. *nordmanniana* (Anşin 1981). These provide suitable habitats for a rich lichen flora. Above 2000 m alpine meadows are dominant. The southern part of the province is mostly covered with xerophytic oak woodland and steppe vegetation.

Materials and methods

Inventorying was done in 52 localities spread over the province. The resulting specimens were identified following the standard identification methods and using mostly the following lichen guides: Brodo et al. 2001, Purvis et al. 1992, Wirth 1995. The samples were air dried and examined using a stereomicroscope and a light microscope. Vouchers are deposited in the herbarium of the Faculty of Science and Arts, Giresun University, Giresun, Turkey. Duplicates of some specimens studied by Etayo and Sipman are kept in their respective herbaria.

Results and discussion

The five species reported here as new for Turkey, *Biatora cuprea, Collema dichotomum, Gyalecta foveolaris*, *Umbilicaria virginis* and *Verrucaria fusconigrescens*, appear to be rather widespread elsewhere and have probably been overlooked previously. *Verrucaria fusconigrescens* was collected from siliceous rocks at the sea shore. It is reported to grow commonly on sunny siliceous rocks in the sublittoral zone on seashores in Europe and N America (Purvis et al. 1992). The coastlines of Turkey are valuable areas in the terms of lichen biota, but the areas have been neglected so far for lichens. Further species rarely recorded in Turkey so far include *Biatora vernalis*, *Buellia abstracta*, *Collema polycarpon* subsp. *corcyrense*, *Staurothele catalepta*, *Toninia squalida*, *Umbilicaria aprina* and *Staurolemma omphalarioides*. According to the literature (see introduction), 328 lichen taxa are reported from Giresun. Together with the additional records from this study the number of lichen taxa known from Giresun now reaches 431. However, additional studies remain necessary to complete the inventary of the lichen biota of Giresun. Especially the southernmost regions of the province are poorly explored. The wide altitudinal range, rough topography and maritime influence of Giresun offer a wide range of niches so that a rich lichen biodiversity can be expected.

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